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WAGNER, MURABITO & HAO LLP
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EXAMINER

MCCARTHY, CHRISTOPHER S

ART UNIT	PAPER NUMBER
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2113

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/931,083

Applicant(s)

BERG ET AL.

Examiner

Christopher S. McCarthy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-15 and 18-36 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 10-15, 18-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Fiske 6,681,390.

As per claim 1, Fiske teaches a method of providing version control within a fault tolerant system comprising: a) invoking a boot sequence of a first controller that is coupled to a nonvolatile storage system; b) during said boot sequence, comparing a preferred application version with a stored application version stored within a memory of said first controller; c) provided said stored application version is different from said preferred application version, storing said preferred application version into said memory; and d) provided said stored application version is the same as said preferred application version, causing said first controller to execute said stored application version (column 3, line 63 – column 4, line 7; column 4, lines 53-58).

As per claim 2, Fiske teaches a method as described in claim 1 wherein said preferred application version is stored in said non-volatile storage system and wherein c) comprises causing said first controller to re-boot (column 4, lines 17-19).

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As per claim 3, Fiske teaches a method as described in claim 1 wherein said memory is a programmable non-volatile memory (column 4, lines 9-11; column 6, lines 53-57; column 2, lines 56-64).

As per claim 4, Fiske teaches a method as described in claim 1 wherein said memory is a flash memory (column 6, lines 53-57).

As per claim 5, Fiske teaches a method as described in claim 1 wherein said non-volatile storage system is a disk array storage system (column 5, lines 12-16; column 6, lines 53-57; column 2, lines 56-64).

As per claim 6, Fiske teaches a method as described in claim 1 wherein said preferred application version provides an interface between a host server and said non-volatile storage system (column 3, lines 45-54; column 6, lines 53-57).

As per claim 7, Fiske teaches a method as described in claim 1 wherein said invoking a boot sequence comprises: a1) executing a first level wake-up boot sequence; a2) during said first level boot sequence, checking two application versions that are associated with a second level boot sequence and selecting a most recent valid version; and a3) executing said most recent valid version as said second level boot sequence (column 4, lines 53-58; figures 2,3).

As per claim 10, Fiske teaches a method as described in claim 1 wherein said fault tolerant system further comprises a second controller coupled to said non-volatile storage system and wherein said method further comprises: invoking a boot sequence of said second controller while said first controller is operational; during said boot sequence of said second controller, comparing said preferred application version with a stored application version that is stored within a memory of said second controller; provided said stored application version of said

second controller is different from said preferred application version, storing said preferred application version into said memory of said second controller and causing said second controller to re-boot; and provided said stored application version of said second controller is the same as said preferred application version, causing said second controller to execute said stored application version (column 5, lines 21-54).

As per claim 11, Fiske teaches a method of providing version control within a fault tolerant system comprising a non-volatile storage system coupled to first and second controllers, said method comprising the steps of: a) while said second controller is operational, invoking a boot sequence of said first controller wherein said non-volatile storage system contains a preferred application version that is associated with said non-volatile storage system; b) during said boot sequence, comparing said preferred application version with a stored application version stored within a memory of said first controller; c) provided said stored application version is different from said preferred application version, storing said preferred application version into said memory; and d) provided said stored application version is the same as said preferred application version, causing said first controller to execute said stored application version (column 5, lines 21-54).

As per claim 12, Fiske teaches a method as described in claim 11 wherein c) comprises causing said first controller to re-boot (column 4, lines 17-19).

As per claim 13, Fiske teaches a method as described in claim 11 wherein said memory is a flash memory (column 6, lines 53-57).

As per claim 14, Fiske teaches a method as described in claim 11 wherein said preferred application version provides an interface between a host server and said nonvolatile storage system (column 3, lines 45-64; column 6, lines 53-57).

As per claim 15, Fiske teaches a method as described in claim 11 wherein said step a) comprises the steps of: a1) executing a first level wake-up boot sequence; a2) during said first level boot sequence, checking two application versions that are associated with a second level boot sequence and selecting a most recent valid version; and a3) executing said most recent valid version as said second level boot sequence (column 4, lines 53-58; figure 2,3).

As per claim 18, Fiske teaches a method as described in claim 11 wherein said method further comprises the steps of: invoking a boot sequence of said second controller while said first controller is operational; during said boot sequence of said second controller, comparing said preferred application version with a stored application version stored within a memory of said second controller; provided said stored application version of said second controller is different from said preferred application version, storing said preferred application version into said memory of said second controller and causing said second controller to re-boot; and provided said stored application version of said second controller is the same as said preferred application version, causing said second controller to execute said stored application version (column 5, lines 21-54).

As per claim 19, Fiske teaches a fault tolerant system comprising: a non-volatile storage system containing a preferred application version; a first controller coupled to said non-volatile storage system and comprising a first memory containing an application version (column 2, lines 56-64); and a redundant second controller coupled to said non-volatile storage system and

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comprising a second memory containing an application version, wherein said first controller, when booting, compares said preferred application version with said application version of said first memory; wherein said first controller, provided said application version of said first memory is different from said preferred application version, stores said preferred application version into said first memory and re-boots; and wherein said first controller, provided said application version of said first memory, is the same as said preferred application version, executes said application version of said first memory (column 4, line 47 – column 5, line 54).

As per claim 20, Fiske teaches a fault tolerant system as described in claim 19 wherein: said second controller, when booting, compares said preferred application version with said application version of said second memory; wherein said second controller, provided said application version of said second memory is different from said preferred application version, stores said preferred application version into said second memory and re-boots; and wherein said second controller, provided said application version of said second memory, is the same as said preferred application version, executes said application version of said second memory (column 5, lines 21-54).

As per claim 21, Fiske teaches a fault tolerant system as described in claim 19 wherein said first and second memories are each programmable non-volatile memory (column 4, lines 9-11; column 6, lines 53-57; column 2, lines 56-64).

As per claim 22, Fiske teaches a fault tolerant system as described in claim 19 wherein said first and second memories are each flash memory (column 6, lines 53-57).

As per claim 23, Fiske teaches a fault tolerant system as described in claim 19 wherein said preferred application version is associated with said non-volatile storage system (column 4, lines 9-11; column 6, lines 53-57; column 2, lines 56-64).

As per claim 24, Fiske teaches a fault tolerant system as described in claim 19 wherein said non-volatile storage system is a disk array (column 5, lines 12-16; column 6, lines 53-57; column 2, lines 56-64).

As per claim 25, Fiske teaches a method of providing version control within a storage system comprising: a) invoking a boot sequence of a first controller that is coupled to a storage device having stored thereon a first application version; b) during said boot sequence, comparing the first application version to a second application version stored in a memory of said first controller; and c) if the first application version is different from the second application version, reconciling the first controller and the storage device such that the same application version is stored on both the memory of the first controller and the storage device (column 3, line 63 – column 4, line 7; column 4, lines 53-58).

As per claim 26, Fiske teaches the method of claim 25 wherein said reconciling comprises storing the first application version into the memory of the first controller (column 4, line 66 – column 5, line 3).

As per claim 27, Fiske teaches the method of claim 25 wherein said reconciling comprises storing the second application version into the storage device (column 5, lines 1-3).

As per claim 28, Fiske teaches The method of claim 25 wherein said reconciling comprises: if the first application version is more recent than the second application, storing the first application version into the memory of the first controller; and if the second application

version is more recent than the first application, storing the second application version into the storage device (column 3, line 63 – column 4, line 9).

As per claim 29, Fiske teaches the method of claim 25 wherein c) comprises rebooting the first controller (column 4, lines 17-19).

As per claim 30, Fiske teaches a fault tolerant system providing version control comprising: a storage system having stored thereon a first application version; a first controller coupled to said storage system and for invoking a boot sequence during which said first controller compares the first application version to a second application version stored in a memory of said first controller; and said first controller, if the first application version is different from the second application version, reconciles between the storage device such that the same application version is stored on both the memory of the first controller and the storage device (column 3, line 63 – column 4, line 7; column 4, lines 53-58).

As per claim 31, Fiske teaches the system of claim 30 wherein said first controller performs reconciling by storing the first application version into the memory of the first controller (column 4, line 66 – column 5, line 3).

As per claim 32, Fiske teaches the system of claim 30 wherein said first controller performs reconciling by storing the second application version into the storage system (column 5, lines 1-3).

As per claim 33, Fiske teaches the system of claim 30 wherein first controller performs reconciling by: if the first application version is more recent than the second application, storing the first application version into the memory of the first controller; and if the second application

version is more recent than the first application, storing the second application version into the storage device (column 3, line 63 – column 4, line 9).

As per claim 34, Fiske teaches a method of providing version control within a fault tolerant system comprising: a) invoking a boot sequence of a first controller coupled to a storage system; b) during said boot sequence, comparing a preferred application version with a stored application version stored within a memory of said first controller; c) provided said stored application version is different from said preferred application version, storing said preferred application version into said memory; d) provided said stored application version is the same as said preferred application version, causing said first controller to execute said stored application version (column 3, line 63 – column 4, line 3; column 4, lines 53-58); e) invoking a boot sequence of a second controller coupled to said storage system while said first controller is operational; f) during said boot sequence of said second controller, comparing said preferred application version with a stored application version that is stored within a memory of said second controller; g) provided said stored application version of said second controller is different from said preferred application version, storing said preferred application version into said memory of said second controller (column 5, lines 21-54).

As per claim 35, Fiske teaches a method as described in claim 34 further comprising: h) provided said stored application version of said second controller is the same as said preferred application version, causing said second controller to execute said stored application version (column 5, lines 21-54).

As per claim 36, Fiske teaches a method as described in claim 34 wherein said preferred application version is stored in said storage system (column 4, line 66 – column 5, line 3).

Allowable Subject Matter

3. Claims 8-9, 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. McCarthy whose telephone number is (703)305-7599. The examiner can normally be reached on M-F, 8 - 4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703)305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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April 2, 2004


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